

REMARKS

Claims 1-21 were pending. By this Amendment, claims 1-21 are canceled and new claims 22-51 are added. Consideration and allowance of pending claims 22-51 are respectfully requested in view of the following remarks.

Claims 1-21 were rejected on the ground of nonstatutory double patenting over claims 1-13 of U.S. Patent No. 6,740,168. To the extent that such a rejection might be applied to pending claims 22-51, Applicants traverse this rejection via the attached Terminal Disclaimer.

Claims 1-21 were rejected as being anticipated by each of U.S. Patent Nos. 4,045,253; 4,578,162; 4,632,705; and 5,764,717. Claims 1 and 17-21 were rejected as being anticipated by U.S. Patent No. 5,601,657. For the following reasons, Applicants traverse these rejections to the extent that they might be applied to pending claims 22-51.

Regarding new claims 22-45, none of the cited references disclose or suggest a method including, among other recitations, that the “the chelant [is] present in the aqueous cleaning solution at a treatment concentration of less than about 1 weight percent,” as recited in claim 22. Moreover, Applicants submit that it would have been nonobvious under conventional wisdom to reduce the higher chelant concentrations disclosed in these prior art references because such a concentration reduction would have apparently impeded the very goal of the cleaning solution, i.e., dissolving scale. Moreover, absent the Applicants’ disclosure in the present application of the non-obvious advantages of reduced chelant concentration, there was no motivation to reduce the chelant concentration to below about 1 weight percent. Specifically, paragraph [0013] of the present application discloses that the “dilute cleaning agent” causes the chelant to “not only react[] at the surface of the deposit, but also penetrate[] below the surface to increase porosity within the deposition and promote laminar dissolution of the magnetite.” The increased porosity advantageously improves heat transfer within the heat exchange system, which advantageously decreases fouling and increases steam pressure. As explained in paragraph [0007], the increased porosity also makes the deposits “more easily removed using known hydro-mechanical cleaning techniques.” None of the cited references recognized such advantages of reduced chelant concentration. Applicants further submit that none of these prior art references pursued lower chelant concentrations (i.e., “less than about 1 weight percent”) because the conventional objective of these prior art techniques had been to completely remove existing deposits, rather than increase the porosity/heat transfer properties of these deposits. Claim 22 is

therefore patentable over the cited references. Claims 23-45 are also patentable over the cited references at least because they depend from claim 22.

Regarding new claims 46-49, none of the cited references disclose or suggest a method including, among other recitations, "between taking the heat exchange system out of service and returning the heat exchange system to service, inducing corrosion of less than 0.001 inch in carbon and low alloy steels," as recited in claim 46. None of the cited references disclose or suggest such little corrosion. The reduced corrosion enables the process to be used more frequently than conventional techniques without compromising the structural integrity of the heat exchange system. *See* specification, ¶ [0007] ("...without causing excessive corrosion of carbon and low alloy steel structural components within the steam generator"). Proposed claims 47-49 are also patentable over these references at least because they depend from claim 46.

Regarding new claim 50, for the reasons discussed above with respect to claim 22, none of the cited references disclose or suggest a method including, among other recitations, "increasing a porosity of deposits in the heat exchange system," as recited in claim 50.

Regarding new claim 51, none of the cited references disclose or suggest a method including, among other recitations, "releasing the used aqueous solution into the environment," as recited in claim 51. To the contrary, prior art cleaning methods involved much higher corrosion levels and larger concentrations of cleaning chemicals. Such conventional methods created radioactive waste that was more expensive to dispose of and could not be released into the environment.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,



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Enclosure: Terminal Disclaimer